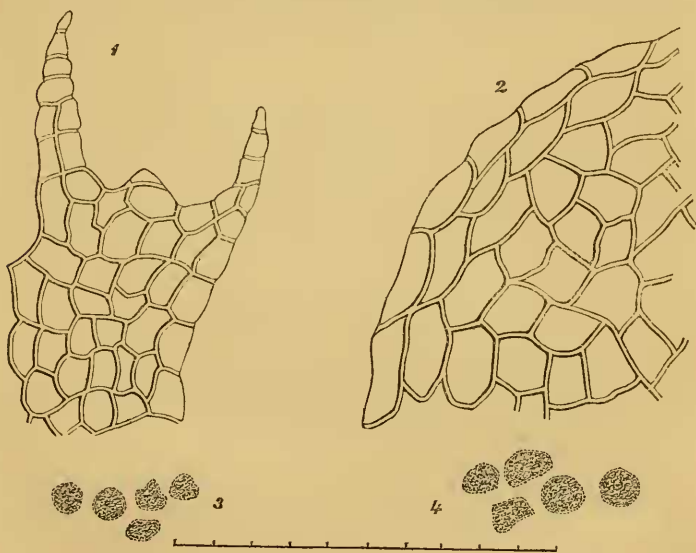


in conclusion, quote from it a short paragraph which contains an important truth, but which may very fairly be applied in other quarters than those for which the author intended it:—  
 “No progress in natural science is possible as long as men will take their rude guesses at truth for facts, and substitute the fancies of their imagination for the sober rules of reasoning.”

XXXI.—On the *Tissue-cells of the Involucres of Hymenophyllum*.  
 By GEORGE GULLIVER, F.R.S.

SINCE the publication, in the August Number of the ‘Annals,’ of my comparison of the leaf-cells of the British species of *Hymenophyllum*, which was done from poor specimens of these plants, Mr. F. Clowes has kindly given me some better-grown leaves of them; and, as he mentioned, I find that they will freshen in water like mosses. Accordingly, after these dried ferns had been put for an hour or two therein, the cells were



Scale,  $\frac{1}{500}$ ths of an inch.

- Fig. 1. Tissue-cells of involucre of *Hymenophyllum Tunbridgense*.
- Fig. 2. Ditto of *H. Wilsoni*.
- Fig. 3. Spores of *Hymenophyllum Tunbridgense*.
- Fig. 4. Ditto of *H. Wilsoni*.

found as perfect as in the growing plants; and many examinations confirmed the accuracy of the fact before stated, that the leaf-cells of *H. Wilsoni* are more elongated and larger than those

of *H. Tunbridgense*. In the perfect specimens from Mr. Clowes the cells are generally polygonal, often hexangular, whereas they are frequently quite round or oval in my more stunted plants. This variation is such as might be expected from the more or less distention of the cells, as the round and oval forms are well known to become angular from mutual pressure in luxuriant growth.

And now, from an examination of the tissue-cells of the involucre of these plants, it results that in them also there is a difference of size, similar to that in the leaf-cells. After repeated comparisons of the involucre-cells of the two plants, it was found that these cells are regularly the largest in *H. Wilsoni*, and that the two species could be easily distinguished by this character alone, as may be seen in figures 1 & 2.

The spores also were larger in these plants of *H. Wilsoni* than in *H. Tunbridgense*. But as the spores were mostly misshapen, though some of them seemed perfect, they should be carefully compared in fresh and mature plants before we conclude that this difference of size is regular and constant. Figures 3 & 4 will show the comparative sizes as I saw them in the plants from Mr. Clowes.

Probably sufficient evidence has now been adduced to show that the cells both of the involucre and leaves may be available as specific characters in Hymenophyllaceæ. In *Trichomanes radicans* the leaf-cells are nearly like those of *Hymenophyllum Wilsoni*, and consequently larger than those of *H. Tunbridgense*.

Edenbridge, Sept. 17, 1863.

#### BIBLIOGRAPHICAL NOTICES.

*The Angler-Naturalist: a Popular History of British Freshwater Fish; with a plain Explanation of the Rudiments of Ichthyology.*

By H. CHOLMONDELEY PENNELL. London: Van Voorst. 1863. 12mo.

WHEN old Izaak Walton published his 'Complete Angler,' it was his endeavour to bring together all the scientific knowledge of his time connected with Fish and fishing; and, absurd as many of his tales appear to us, they were undoubtedly vouched for in his day by naturalists of high authority. But even these erroneous statements have often a charm, partly from the quaintness with which they are related, and partly from the perfect good faith with which they are woven into the narrative; and Walton's book was certainly, at the time of its publication, a mine of information upon natural history, in the angling point of view, such as has never since been equalled. Indeed in most of our angling-books the descriptions of the habits of Fish are borrowed more or less directly from Walton; and some